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Cheng-Hung Ho

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EXAMINER

SCHMIDT, KARL L

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,115	<b>Applicant(s)</b> HO ET AL.	
	<b>Examiner</b> KARI L. SCHMIDT	<b>Art Unit</b> 2139	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 March 2008 has been entered.

### ***Notice to Applicant***

This communication is in response to the amendment filed on 03/12/2008. Claims 1-20 remain pending. Claims 1-5 and 11-16 have been amended. The examiner would like to note the examiner examining the case has changed. The new examiner is Kari L. Schmidt. The art unit has not changed.

### ***Response to Arguments***

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "of the image" in line 2 and 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8-10, 11-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. "Image Coding By Folding" in view of Inomata et al. (US 2004/0120517 A1).

Claims 1 and 11

Zhu discloses comprising: a first image device; comprising: a compression unit to divide an original image into two image parts according to a compression technique (see at least, abstract: the examiner notes a coding/compression algorithm) wherein a first

image part of the image parts is the base image data and a second image part of the image parts is the auxiliary image data image (see at least, abstract: the examiner notes an image is split into a host image and a residual image), and the base image data and the base image data and the auxiliary image data respectively comprise a part of image contents comprising pixel values of the original image (see at least, section 4 "Experimental Results": the examiner notes the image size in pixels) and compress the base image data to compressed base image data according to the compression technique (see at least, abstract: the examiner notes the use of a standard compression technique to compress the host); and an image composing unit coupled to the compression unit to receive and compose the compressed base image data and the auxiliary image data bit stream into a image corresponding to the original image (see at least, introduction: the examiner notes the host image, which is compressed, and residual image, which is compressed into a bit stream, is embedded into the host image).

Zhu fails to disclose an image protection system comprising an encryption unit coupled to the compression unit to receive and encrypt the auxiliary image data to an auxiliary image data cipher; and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image.

However, Inomata discloses an image protection system (see at least, abstract) comprising an image divider that divides an image into two parts (see at least, [0025]: the examiner notes an image divider to divide the original data) into an image to be

compressed (see at least, [0025]) and using an encryption unit coupled to the image divider (see at least, FIG. 1) to receive and encrypt the auxiliary image data to an auxiliary image data cipher (see at least, [0033]-[0034]: the examiner notes encrypt or is carried on out the code table representing the quantization values of the image) and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image (see at least, [0035]: the examiner notes the multiplexer joins compressed data output and the encrypted data) .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu's compression image device that divides an original image to include an image protection system, comprising an image divider that divides an image into two parts into an image to be compressed and using an encryption unit coupled to the image divider to receive and encrypt the auxiliary image data to an auxiliary image data cipher and an image composing unit that combines the image parts to compose a plaintext for the first image part and cipher for the second image part are in the protected image as taught by Inomata to add the functionality of image protection and encryption. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).

Claims 2 and 12

Zhu fails to disclose further comprising: a second image device, comprising: an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher; a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key; and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data, decompress the compressed base image data to the base image data, and combine the base image data and the auxiliary image data to recover the original image according to the compression technique.

However, Inomata discloses further comprising a second image device, comprising (see at least, [0041]: the examiner notes a decompression/decryption device): an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher (see at least, [0041]: the examiner notes a demultiplexer separates input multiplexed data in order to interpret and decode the result into an image (e.g. [0045])); a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key (see at least, [0042]: the examiner notes a decryptor decodes extracted encrypted data and restores the correct quantization table); and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data (see at least, [0041]-[0045]), decompress the compressed base image data to the base

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image data (see at least, [0043]: the examiner notes an entropy decoder decodes the compressed data one at a time), and combine the base image data and the auxiliary image data to recover the original image according to the compression technique (see at least, [0045]: the examiner notes an image reconstructor reproduces the original image from the decompression/decryption process).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu to include a second image device, comprising: an image decomposition unit to receive and decompose the protected image into the compressed base image data and the auxiliary image data cipher; a decryption unit coupled to the image decomposition unit to receive and decrypt the auxiliary image data cipher to the auxiliary image data using a decryption key; and a decompression unit coupled to the image decomposition unit and the decryption unit to receive the compressed base image data and the auxiliary image data, decompress the compressed base image data to the base image data, and combine the base image data and the auxiliary image data to recover the original image according to the compression technique as taught by Inomata. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).



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Claims 3 and 13

Zhu fails to disclose wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance.

However, Inomata discloses wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance (see at least, [0025]: the examiner notes the use DCT (discrete cosine transformation) and wavelet transformation as an orthogonal transformation process).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu to include wherein the first image device further comprises a transformation unit to perform discrete wavelet transformation on the original image in advance as taught by Inomata. One of ordinary skill in the art would have been motivated to combine the teachings in order to avoid the risk of image data disclosure due to interception on the internet or as a result of being viewed by unauthorized persons (see at least, Inomata, [0005]).

Claims 8 and 18

Zhu discloses wherein the compression technique is resolution compression (see at least, introduction: the examiner notes the host image is 50% of the size of the original).

Claims 9 and 19

Zhu discloses wherein the compression technique is quality compression (see at least, introduction: the examiner notes the host image is 50% of the size of the original and still have perfect reconstruction) .

Claims 10 and 20

Zhu discloses wherein the compression unit further compresses the auxiliary image data (see at least, abstract: the examiner notes the residual image in compressed into a bit stream).

Claims 4-7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. "Image Coding By Folding" in view of Inomata et al. (US 2004/0120517 A1).as applied to claim 1 and 3 above, and further in view of Fukushima (US 6,917,382 B1).

Claims 4 and 14

Zhu in view of Inomata fails to disclose wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined.

However, Fukushima discloses wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on

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the original image after the original image is combined (see at least, col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the second image device further comprises an anti-transformation unit to perform anti-discrete wavelet transformation on the original image after the original image is combined as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

#### Claims 5 and 15

Zhu in view of Inomata fails to disclose wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation.

However, Fukushima discloses wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation (see at least, col. 8, lines 24-27: the examiner notes a quantization step that quantizes each coefficient and col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include

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wherein the first image device further comprises a quantization unit to quantize each coefficient of the original image after the discrete wavelet transformation as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

#### Claims 6 and 16

Zhu in view of Inomata fails wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the image before the anti-discrete wavelet transformation.

However, Fukushima wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the image before the anti-discrete wavelet transformation (see at least, col. 9, lines 49-57: the examiner notes an inverse quantization unit and col. 10, lines 20-39: the examiner notes an inverse discrete wavelet transformation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the second image device further comprises an anti-quantization unit to anti-quantize each coefficient of the image before the anti-discrete wavelet transformation as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

Claims 7 and 17

Zhu in view of Inomata fails to disclose wherein the compression technique is region of interest (ROI) compression.

However, Fukushima discloses wherein the compression technique is region of interest (ROI) compression (see at least, abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhu in view of Inomata to include wherein the compression technique is region of interest (ROI) compression as taught by Fukushima. One of ordinary skill in the art would have been motivated to combine the teachings in order to automatically set an appropriate region of an image in order to perform coding (see at least, Fukushima, see at least, col. 1, lines 57-62).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARI L. SCHMIDT whose telephone number is (571)270-1385. The examiner can normally be reached on Monday - Friday: 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid can be reached on 571-272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kari L Schmidt/  
Examiner, Art Unit 2139

/Kristine Kincaid/  
Supervisory Patent Examiner, Art Unit 2139